

The 18th Congressional District's
Santa Cruz County Student Advisory Board



Environment

2013-2014 Annual Reports

May 31st, 2014

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INTRODUCTION

As students in high school, our voices tend to project ominously into the distance; there are those who believe that due to our young age our voices do not need to be heard, and offer little value. To combat this sentiment, Congresswomen Anna G. Eshoo allows students who feel strongly about national affairs to come together, discuss national policy, and foment a student voice. This year, the Santa Cruz County Student Advisory Board is comprised of students who harbor strong opinions regarding the environment. In an effort to illuminate the disparities in the nation's environmental policy, the body of students explores different national policies and bills, which would aid the cause for environmental rejuvenation. Collectively, the group aims to state their concerns about environmental topics, and propose legislation for Congresswoman Eshoo to veto or support.

The 2014 Santa Cruz County Student Advisory Board is comprised of highly motivated students, dedicated to their proposed causes, who aspire to create change in their community. The Board contains six individual presentations, each with a select topic of discussion; in each research report, board members state their intentions and propose a solution or path they hope Congresswoman Eshoo to follow. The Board is undertaking the topic of the environment, with reports ranging from ocean acidifications, to the formation of the Keystone Pipeline, and the effects of the environment on National wellbeing. Each student researched and crafted a personalized take on each topic, and hopes to influence the passage or rejection of legislation.

We hope that you will be captivated and inspired by our research on each respective topic, which we present for the 2013-2014 Student Advisory Board. We would like to thank and acknowledge our advisors, Alex Villafuerte and Christine Padilla, for the time they invested in the board. We would also like to thank Congresswoman Anna G. Eshoo for giving us this one-of-a-kind opportunity. We greatly appreciate the work that Congresswoman Eshoo has done for the community and for the 18th Congressional District.

Student Advisory Board Research Paper
Environment Affecting Healthcare
By: Austin Bernard

Many of the ways we harm our environment come back to haunt us in the form of sickness and sometimes even death. There are many things in our environment that can affect our health and make us sick, such as pesticides, smokestack- befouled air, petrochemical products, and chemical and nuclear factories. Each of these elements and factors that are in our environment can cause different sicknesses or diseases. A piece of legislation that could be a solution to at least one of these problems is H.Res.315 - Providing for consideration of the bill (H.R. 2218) to amend subtitle D of the Solid Waste Disposal Act to encourage recovery and beneficial use of coal combustion residuals and establish requirements for the proper management and disposal of coal combustion residuals that are protective of human health and the environment, and providing for consideration of the bill (H.R. 1582) to protect consumers by prohibiting the Administrator of the Environmental Protection Agency from promulgating as final certain energy-related rules that are estimated to cost more than \$1 billion and will cause significant adverse effects to the economy. Other ways that we can solve these problems in the environment that are affecting our health are we could have more organically grown food to reduce the pesticides in the foods we eat. We could also reduce the amount of petrochemicals that we use. There are many links to how the environment can affect our health.

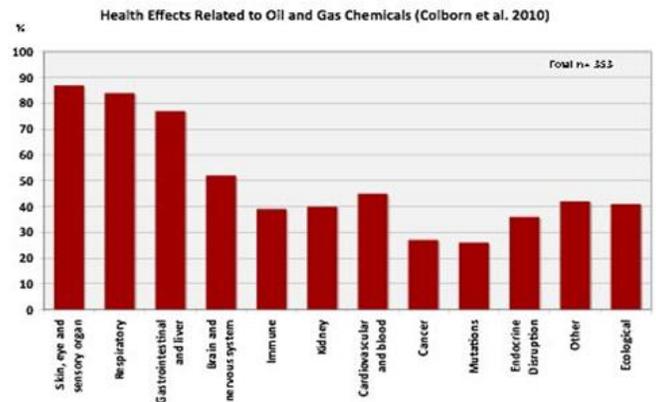
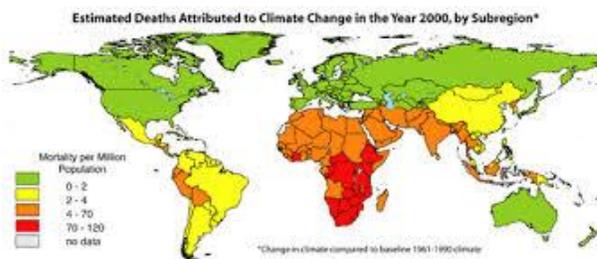
Although the environment sustains human life, it can also cause disease. Lack of basic necessities is a significant cause of human mortality. Virtually all types of water pollution are harmful to the health of humans and animals. Water pollution may not damage our health immediately but can be harmful after long term exposure. Water pollution is any contamination of water with chemicals or other foreign substances that are detrimental to human, plant, or animal health. These pollutants include fertilizers and pesticides from agricultural runoff; sewage and

food processing waste; lead, mercury, and other heavy metals; chemical wastes from industrial discharges; and chemical contamination from hazardous waste sites. Worldwide, nearly 2 billion people drink contaminated water that could be harmful to their health (National Institute of Environmental Health Sciences). In 2004, lack of access to safe drinking water was responsible for 1.8 million deaths (mostly small children) from diarrhea. That same year, lack of adequate sanitation caused 160 million people to become infected with schistosomiasis, which can cause malnutrition and organ damage. Approximately 1.1 billion people currently lack access to safe drinking water, and 2.6 billion do not have proper sanitation (World Health Organization). Environmental hazards increase the risk of cancer, heart disease, asthma, and many other illnesses. These hazards can be physical, such as pollution and food contaminants, or they can be social, including dangerous work conditions and poverty (National Cancer Institute and National Institute of Health). By contrast, activities that promote health and extend human life can have adverse environmental effects. For example, food production causes environmental damage from pesticides and fertilizers, soil salinization, waste produced by livestock, carbon emissions from food manufacturing and transportation, and overfishing. Health care facilities also have adverse environmental impacts.

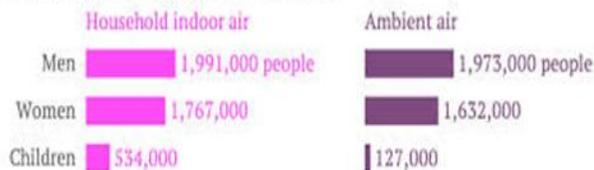
There is a growing body of evidence that the environment can affect human health and that human health care can affect the environment. Thus, the traditional divide between clinical medicine and environmental protection is disappearing. This change has created a need for bioethical reflection on all levels of interaction between human health and the environment. The questions that span medical and environmental ethics are complex, diverse, frequently global in scope, and not able to be answered without collaboration among environmental scientists, physicians, public health professionals, ethicists, lawyers, and policymakers. Where should a county place a solid waste facility? Should emergency health care workers be vaccinated against smallpox? Should new housing developments have sidewalks and bike paths to help prevent obesity? Should any use of DDT be permitted to control malaria? Should the United States increase foreign aid to help impoverished nations improve their water supplies? Are transgenic plants an acceptable

alternative to pesticides and chemical fertilizers? How much of their limited resources for environmental health should the nations of the world allocate to preventing and adapting to global climate change? Finding satisfactory answers to questions like these will become increasingly important as the environmental impacts of human activities continue to mount. So I ask you to support H.Res.315 and possibly propose other legislation to help prevent the environment from affecting our health.

I hope that you support and will possibly come up with further legislation of the same nature as H.R. 2454 because this legislation would amend the Safe Drinking Water Act (SDWA) by inserting a provision directing the EPA Administrator to promulgate, within one year of enactment, regulations for the development, operation, and closure of carbon dioxide geologic equation wells, and to take into consideration the ongoing SDWA rulemaking regarding these wells. These carbon dioxide geologic equation wells are areas of water under the ground, wherein the potential exists for underground sources of drinking water (USDWs) to be endangered by the leakage of injected substance and/or formation fluids (EPA).



Annual deaths attributable to air pollution



Quartz | qz.com

Data: World Health Organization

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Student Advisory Board Research Paper

Overfishing

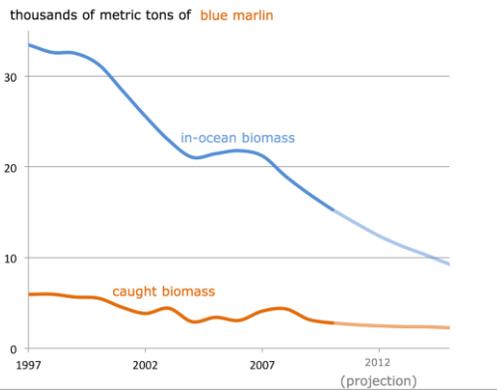
By: Mikaela Slade

The oceans worldwide have been being fished for a long time; however in the mid twentieth century overfishing began to drastically increase. Fish were being harvested and removed from the oceans by the millions, due to fisheries aggressive reaping. The effects of this have promoted organizations to get bills into Congress in order to prevent these large fishing companies from stripping the oceans of our fish. In 2006-2007 legislation was enacted and the federal government began to manage fisheries, although it wasn't until 2011-2012 that the catch limits were implemented. However, even with this regulation it is going to be at least ten years before the rebuilding of these fish populations is at a suitable level. Even these current regulations are barely enough to keep these fish populations at healthy levels, due to the devastation that has already commenced.

Overfishing has been a predominant problem, and still is. It harms the ecosystems and habitats for it depletes the fish populations, throwing the food chain off balance. This then hurts everything from the largest predatory sea creatures, to the prey. In a recent article published by Scienceline, an example of a fish that is being overfished is illustrated, ". . .the blue marlin population continues to plummet. A large, popular fish spanning from the coasts of Argentina to Nova Scotia, blue marlin are vulnerable in countries with fewer catch regulations. Rebuilding this population, Greene says, will depend a combined international effort to curtail overfishing." This contemporary article demonstrates how this popular fishes species is being affected as a result of overfishing. As the fish populations decreased, new regulations had to be established. These regulations did help limit the amount of fish commercial fisheries could collect from the oceans; however it did not solve the problem.

Local fishing communities are also experiencing hardships because of industrial fishing companies reaping the area of all their fish, then shipping that fish

to different locations. A supporting article published by World Wildlife supports this, “ The results [of overfishing] not only affect the balance of life in the oceans, but



also the social and economic well-being of the coastal communities who depend on fish for their way of life. Billions of people rely on fish for protein, and fishing is the principal livelihood for millions of people around the world.” . The local companies, unlike the large corporations, are subject to their specific areas well being for their

income is reliant upon the future generations of fish. Whereas the large industrial corporations will just leave once all the fish are gone. A statistic from the World Wildlife’s article states that, “More than 85 percent of the world's fisheries have been pushed to or beyond their biological limits and are in need of strict management plans to restore them.” Leaving the local fishing companies with no money, no source of income, and no fish. In order to control this there were laws passed and regulations placed upon these corporations in order to attempt to control the devastation that these companies were causing.

This devastation of the environment and the local businesses will end up hindering the local and national economy. If overfishing continues then the fish populations will be so depleted that no one will be able to fish. The local companies will also be affected, for the source of some peoples income is directly associated with the dependency of fish being present. A personal testimony from the World Wildlife article, “A Big Step Forward in the Fight Against Illegal Fishing, says, “ Illegal fishing not only contributes to overfishing and depletes valuable fisheries; it unfairly hurts law-abiding fishermen and deprives coastal states of much-needed revenue’ said David Schorr, head of WWF’s Transparent Seas Project ‘Ratifying and implementing this treaty is one of the most important immediate actions international leaders can take in the fight against illegal fishing.’” The agreement he is referring to is, The Port State Measures Agreement. This will “. . .help close ports to vessels suspected of illegal fishing and block illegally caught fish from entering

the global marketplace.” (worldwildlife) Though the regulations did help, there are still problems with poaching and an unstable fish population. As an article from the World Wildlife’s page says, “The United States government took a major step forward at the beginning of April in the global fight against illegal, unregulated, and unreported fishing. The US signed an agreement to a set of minimum standards for what every port state must do to prevent illegally caught fish from being offloaded and reaching global markets.” This deviation of the fish populations is not only hard on the ecosystems, but on the environment as well.

This practice of overfishing also drastically impacts the economy. Without a healthy fish population, the fishing business suffers and therefore the fishing stocks decrease. As phrased in the same article from the World Wildlife page, it says, “Illegal fishing is a global challenge. With losses valued up to \$23 billion annually worldwide, illegal fishing accounts for an estimated 20% of the world’s catch and as much as 50% of the catch in some fisheries.” A bill that will help the overfishing problem is the S. 2184 bill, which has been referred to a Senate committee. This bill is meant to, “develop a regional fishery investment plan identifying research,



conservation, management needs, and actions to rebuild and maintain healthy fish populations and sustainable fisheries; and make recommendations to the Council on grant applications and projects to implement the respective plans.”

This bill will help ensure that overfishing remains adequately controlled and we all slowly continue to rebuild the fish population in the sea.

Overfishing can also be stopped in the future if by paying attention to the environmental laws that are brought up in Congress to protect the fish populations in the sea. There are currently organizations working to protect these fish, like World Wildlife, who could use your support in ending overfishing and nursing the seas fish populations back to health.

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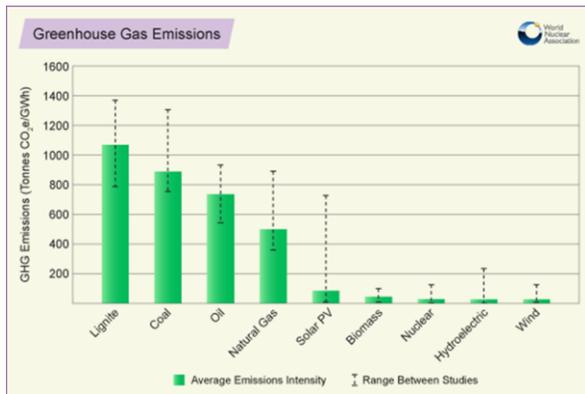
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Student Advisory Board Research Report
By: Mackenzie Peddy
Nuclear Energy

It is a well-documented and discussed fact that climate change is coming to the world and hope looks very bleak about fixing the afflicted environment. An IPCC report has shown that worst case scenario climate change has already risen in seven years (IPCC). Change needs to come to environmental policy, and it needs to come as fast as possible. To combat this exponential rise in climate change, the most viable policy to explore is nuclear energy. While renewable energy sources such as solar and wind are preferable, their cost is far too large for the public to adopt and their energy input is insufficient for the United States to adopt at this time (Famham). Nuclear energy is the only energy source that can compete with fossil fuels and coal while producing fewer carbon dioxide emissions.

Nuclear fission primarily differs from fossil fuel burning because nuclear fission does not emit sulfur dioxide or nitrogen oxide, the pollutants that cause acid rain (Rastogi). Carbon dioxide emissions also greatly improve when nuclear energy is utilized, as nuclear energy generally produces less than 200 tons of carbon dioxide per gigawatt hour, while burning oil produces over 700 tons of carbon dioxide per gigawatt hour (World Nuclear Association) . It is estimated that lifecycle emissions of natural gas are 15 times greater and coal generation are 30 times greater than nuclear energy emissions. Nuclear energy facilities avoid producing about 590 million metric tons of carbon dioxide which would usually be produced if done by alternative energy sources (NEI). This is roughly equivalent to 110 million car emissions. Nuclear plants also have reduced sources of smog and multiple greenhouse gases from being released into the atmosphere (Browner). While only about 12 percent of the world's power is derived from nuclear energy, if that nuclear power which is produced was produced by fossil fuels, the carbon dioxide emissions would reach about two billion metric tons (Brain and Lamb).

Of course, there are numerous reasons why nuclear power has not been adapted at a larger scale. These reasons include cost of building nuclear plants, what to do with nuclear waste, and the fear of nuclear plant disasters like Chernobyl and Fukushima. At this time however, there are technologies being developed that can battle these concerns. One is the use of molten salt reactors, which use a fluid fuel in the form of hot fluoride, or chloride salt, which can work as a fuel and a coolant. The Liquid Fluoride Thorium Reactor is a Molten Salt Reactor which works with



Thorium and Uranium, creating an incredible amount of energy in a safe, efficient way (Touran). Thorium itself if used for nuclear fuel could produce much less waste and could not create a nuclear chain reaction. Thorium is also incredibly more abundant than Uranium, which creates an extremely available

energy source (World Nuclear Association). While creating nuclear plants is fairly costly, the cost of destroying our environment is much worse. And while there would of course have to be money taken from taxpayers in order to fund such plants, nuclear energy costs would not change like natural gas prices change with the fluctuating natural gas market and therefore more efficient for the consumer in the long run.

While there is currently no bill at all dealing with this issue, I feel it is important to stay open to this viable source of energy as there are very few options left in dealing with the energy crisis on America's hands. This is a problem that goes above partisan politics and should be considered as a legitimate option and not as one that inspires images of fear.

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Student Advisory Board Research Paper
Brett Bukowski
Keystone Pipeline

For the United States, the Keystone pipeline will benefit us greatly and allow our nation to prosper quicker and with more control. This project has been under much scrutiny and review in the past five years. The project has been slated an environmental disaster and the democrats will not pass the bill. The keystone pipeline is a massive benefit to all Americans. Building this modern infrastructure crates large amounts of stable jobs and stimulates the economy. Also, the taxes paid by TransCanada provide much needed revenue to pay for county infrastructure. In addition, the construction would help US manufacturing and give another boost to the economy. Plus, the Keystone Pipeline enhances energy security and provides the country a sense of control over the growing energy crisis. Finally, the Keystone Pipeline supports energy independence and allows the US to not look to the Middle East for oil. The Keystone Pipeline should be approved and passed for the benefit of the entire nation.

The major benefit to the construction of the Keystone Pipeline is that it will create a modern infrastructure that will create American jobs, which will in turn stimulate the economy. The third largest oil reserves in the world are present under the United States and Canada. Connecting that to the most modern refining hub in the world create strong economic benefits and contribute to a modern, safe and efficient energy infrastructure, including jobs, economic stimulus and energy security. Even president Obama has told the public that a modern infrastructure is a top priority and says we need the fastest and most reliable infrastructure. He was talking mainly about energy grids and modernizing the pipelines. The Keystone Pipeline would benefit all of these needs laid out by Obama and should be passed to start construction.

Secondly, the taxes paid to the counties to have the Keystone Pipeline in their town will get paid a hefty sum of money. TransCanada have invested 900 million dollars into our pipeline integrity. Some of the already taxed areas in Nebraska are being used to construct new schools and have better school equipment. Some estimate the amount of tax revenue can soar over 100 million dollars. The benefit would help American towns and counties and make the Midwest prosper for years to come.

Finally, the Keystone Pipeline will benefit Americas manufacturing and enhance our energy security and our energy independence. Low energy cots and benefit to all Americans, but epically American manufacturers. A lower cost to produce goods gradually causes the lowering of prices of goods across the planet. Also, the transport of energy through the middle of the nation will keep costs stable and keep competitor high with gulf oil companies. In addition to boosting manufacturing, the Keystone Pipeline will enhance our energy security and independence from the Middle East. The move to domestic and local oil keeps our reliant of far away oil down and secures us for the future. With domestic oil the price will go down for a gallon of gas because of less transport and less manufacturing to get the oil to the mainland. Allowing us to produce our own oil keeps our independence from foreign oil higher and allows the people of this country to feel safer then ever before. The Keystone Pipeline is a necessity for the future of America's energy.

In conclusion, the Keystone Pipeline is a very critical part of America's future in energy and can benefit every American with its massive boost to the economy. The benefits far out way the negatives and should be pushed through congress to benefit the nation. I believe that passing this bill will help build a modern infrastructure, gives people large amount of tax money, and help support manufacturing by securing Americas energy future. Yes, the Keystone Pipeline affects the environment in a negative way by intruding on other ecosystems, but if the economy is the number one problem in America right now then the Keystone Pipeline should be an easy pass.

Student Advisory Board Research Paper
Jurgen Pramps
Fracking and the Keystone Pipeline

The impending energy crisis has forced the United States to look for different ways to supplement the nation's energy consumption. The nation looks to wean itself off its dependence on foreign oil and energy and to find new and innovative ways of reaching untapped energy. In response to the clamor for energy, fracking has emerged as a viable solution to reaching untapped resources. However, as fracking is able to reach an abundance of natural gas that could power the nation, the effect of hydraulic fracturing is injurious to the environment, and may propose more problems than it can solve.

Fracking, or hydraulic fracturing, is a method of extracting the natural gas that lies within the Earth's crust. While there are ways to reach the gas using the veins and dikes that run through the ground, induced hydraulic fracturing is the primary method of extraction. To reach the gas, a drill is placed into the Earth and a solution of chemicals, most notably petroleum, gas, and uranium solution, as well as water and sand is pressured into the surrounding area. The solution is bombarded against the shale in the Earth, creating an opening for the gas to fill and be extracted. This detrimental process requires millions of gallons of water, in conjunction with a number of harmful chemicals, some of which are known carcinogens. In addition to destroying the Earth's crust just below the surface, fracking requires more than just a drill and results in more than just water waste. To reach the untapped reserve of natural gas, land must be cleared, equipment must be hauled to the site, and waste must be expelled from the site. Among the waste products created, wastewater has



become a sizeable contributor, as the millions of gallons of water used in the process must be stored before processing.

Continually, fracking companies state they're able to safely and effectively use hydraulic

fracturing to expel natural gas; despite their resolve, numerous problems have

(A fracking station used to extract natural gas)

arisen from across the nation. Many groups are

now speaking out against fracking companies because of their injurious habits. The New Yorkers Against Fracking state, "Since fracking began in states outside of New York, there have been numerous reports of water contamination. Studies link fracking-related activities to contaminated groundwater; air pollution; illness, death, and reproductive problems in cows, horses and wildlife; and human health problems,"(NYAF). Overlooking these facts could lead to a host of problems, such as large-scale water contamination.

Advocates of fracking believe that these stories warrant no merit, and dismiss them as unsubstantiated. Nonetheless, in recent months, the EPA has put forth their findings on fracking; these results have gone in favor of opponents of the process, as they state that fracking is harmful to groundwater due to the pollution that comes of the process. In response to the report, Josh Fox of *The Guardian* claims, "Beyond the US, Europe, South Africa, China and Australia are right now contemplating embarking on the 'shale gas revolution'; they should take note of the EPA's findings. As the story unfolds, the real answer bubbles inexorably to the surface: fracking is deeply flawed; it is inherently contaminating in its present form and must be halted immediately," (Forbes).

As mounting evidence becomes available, depicting the flaws and negative effects that hydraulic fracturing elicits, advocates vocalize their beliefs in the



viability and safety of the process, which can be achieved through implementing regulations and limitations. These uncorroborated statements should fall upon deaf ears, as fracking has not been altered in any major way, to make the process safer and more effective. To ensure that California is not threatened with the impending rise in fracking, current legislation must be vetoed.

Presently, two bills have been introduced to the House and the Senate: H.R.2513 and S.1234. These bills state that the decision on fracking should be decided upon by the states rather than implemented nation-wide through the federal government. I urge you to veto both bills, as they would grant the state government power to decide to allow or disallow fracking to transpire within the state. While the bill would be well suited for states like California, in the war against fracking, other states would use it to condone the process within their boundaries. Giving states the right to implement or prohibit fracking has become the issue, leading to a single viable solution: federal regulations.

In addition to fracking, another pressing environment issue looms in the distance, the Keystone XL Pipeline System. The pipeline seeks to cross the entire country, spanning from the southern city of Houston, Texas, and reaching to the northern city of Alberta, Canada. The pipeline proposed by TransCanada, when all phases are completed, would cross through nine Midwest states. The pipeline promises jobs and a public works project that will lead to the stimulation of the economy: however, according to the National Wildlife Federation, if approved, it will destroy a **(Area to be covered by the pipeline)** great deal of American biodiversity and mar the nation with a detrimental blemish to the environment. To

combat the creation of a pipeline, running straight through the nation, I urge the veto of bill S.2280. At this point, the bill has just been introduced as of May 1, 2014, but proposes a major problem that must not pass the House of Representatives.

The environment is a system in the U.S. that must be protected, if not through the morality of man, then through the passing of legislation. In response to the problems that fracking imposed, I urge the veto of all presented bills, H.R.2513 and S.1234 on fracking, and S.2280 on the pipeline, due to the detriment that will come from fracking and a transnational pipeline.

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Student Advisory
Madeleine Melcher
Pesticide Regulation: Atrazine Use in Pesticides

Introduction:

The regulation of pesticides is immensely important, as pesticide use poses myriad issues in regards to both human health and environmental degradation. Laboratory studies have shown that exposure to pesticides can create extreme health risks for humans, including birth defects, nerve damage, and cancer. Pesticides can affect humans through inhalation exposure, dermal exposure, and oral exposure. Sources of pesticide exposure include food, home and personal use pesticides, pesticides in drinking water, and worker exposure to pesticides. The runoff that results as a product of pesticide use also creates an immense issue, as it enters into rivers, streams, and lakes and impacts aquatic life.

Problem:

There are currently pesticides that contain virulent chemicals being produced and used within the United States. One harmful chemical that is still legal is atrazine. Atrazine is known to produce adverse health effects in humans, and it can also create a huge issue for aquatic life.

Atrazine negatively impacts phytoplankton. As phytoplankton are at the bottom of the food chain they are essential for the lives of many species, and harming them could essentially result in a trophic cascade. Atrazine is an endocrine disrupter that can interfere with the hormonal activity of animals and humans. Researchers have witnessed that after being exposed to atrazine rats often undergo puberty much later than would be expected. Epidemiological studies have found that exposure to atrazine may be associated to an increased risk of miscarriage, reduced male fertility, low birth rate, and an increased chance of birth defects.

Exposure to atrazine has also been linked to an increased risk of breast and prostate cancer.

Fish and amphibians are also extremely vulnerable to the effects of atrazine. Even exposure to trace levels of the herbicide can negatively impact aquatic life. Frogs that have been exposed to atrazine at a concentration as small as .1 parts per billion have experienced impacts as severe as chemical castration. Atrazine has been seen to alter amphibian and fish growth, behavior, immune function, and gonadal development.

Atrazine is one of the most commonly used herbicides throughout the United States. Traces of atrazine are found in 94% of the drinking water in the United States tested by the USDA. The highest levels of atrazine tend to be in the Midwest, as it is often used on cornfields. The Environmental Protection Agency's Atrazine Program has found that drinking water in 67 public systems have peak atrazine levels which are above 3 parts per billion, the legal limit. In Ohio one public system had levels as high as 60 parts per billion. Atrazine has numerous adverse impacts on myriad life forms, and it is therefore incredibly important that either more stringent regulations are enforced, or that the use of atrazine is banned completely.

Solution:

The reliance on atrazine is not necessary. Atrazine is used to stop pre and post-emergence broadleaf in crops such as maize, sorghum, and sugarcane; it serves a necessary function, but there are more environmentally feasible ways to approach the issue that it combats. Replacement products for weed control that have far fewer adverse impacts on environmental health are available. If farmers stopped using pesticides with atrazine in them yield losses would total less than 1%. Unfortunately, using alternative methods would result in an estimated loss of one billion dollars per year for U.S. farmers. Although atrazine is the most cost-effective option, studies have shown that it can be extremely harmful to human and animal life. Ultimately health considerations should outweigh economic considerations. In June of 2013 a bill was introduced to prohibit the use, production, sale, importation, or exportation of any pesticide containing atrazine. (H.R. 2044) This bill was

referred to the Subcommittee on Horticulture, Research, Biotechnology, and Foreign Agriculture. It is of the utmost importance that this bill is reintroduced, or a similar bill is introduced, into Congress. The use of atrazine in pesticides is dangerous to both human and animal health, and the best way to limit our exposure is by changing how strictly its use is regulated.

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